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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/728,244	12/01/2000	Thomas J. Bucholz	DE3-0081	2505

7590 06/27/2002

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EXAMINER

JOYCE, WILLIAM C

ART UNIT

PAPER NUMBER

3682

DATE MAILED: 06/27/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/728,244

Applicant(s)

BUCHOLZ ET AL.

Examiner

William C. Joyce

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-25, 32-37 and 39-46 is/are allowed.
- 6) ☒ Claim(s) 26-30 and 38 is/are rejected.
- 7) ☒ Claim(s) 31 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 03 April 2002 is: a) ☐ approved b) ☒ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

This office action is in response to the amendment filed April 3, 2002 for the above identified patent application.

#### ***Drawings***

1. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on April 3, 2002 have been disapproved because it contains new matter which was not described in the original disclosure. For example, proposed Figure 6 shows the worm gear being configured with convex flank surfaces which mesh with concave surfaces of the worm such that a clearance (154) is formed between the worm gear and the worm. More clearly, the original disclosure does not describe the clearance (154) as shown in proposed Figure 6.

2. In view of the proposed drawings being disapproved, as described above, the drawings are objected to under 37 CFR 1.83(a) because they must show every feature of the invention specified in the claims. Therefore, the worm gear having an "arcuate-formed flank surface (which) is convex relative to said tooth" (claim 29) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

#### ***Specification***

3. The amendment filed April 3, 2002 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment

shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: The description corresponding with newly submitted Figure 6 must be removed from the specification because the original disclosure does not describe the worm gear being configured with convex flank surfaces which mesh with concave surfaces of the worm such that a clearance (154) is formed between the worm gear and the worm. Applicant is required to cancel the new matter in the reply to this Office Action.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 26-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Popov (US Patent 4,047,449).

Popov discloses a worm gear arrangement comprising, a worm gear (2) having arcuately-formed flank surfaces, the arcuately formed surfaces being formed across a width of each tooth of the worm gear, wherein the worm gear is efficiently operable under load conditions.

With respect to the limitation "capable of reducing backlash," it is understood that backlash of the worm gear arrangement can be reduced by adjusting the distance between the worm gear and the worm.

6. Claim 38 is rejected under 35 U.S.C. 102(b) as being anticipated by Visser (USP 3,122,938).

Visser discloses a gear arrangement (Figs. 13-15) comprising a worm (100) and a flexible worm gear (102) in double flank engagement with the worm. Due to the flexibility of the gear arrangement, it is understood that the contact area between the worm and the worm gear in a low-load condition is smaller than the contact area at a higher load condition.

7. Claim 38 is rejected under 35 U.S.C. 102(b) as being anticipated by Brown (US Patent 1,440,907)

Brown discloses a gear arrangement comprising a worm (2) and a worm gear (6) in double flank engagement with the worm. Referring to lines 66-71, Brown discloses that the elasticity of the metal provides for a contact of greater area than is ordinary obtainable and consequently gives an increased load carrying capacity between the two gears. Accordingly, it is understood that the contact area between the worm and the worm gear in a low-load condition is smaller than the contact area at a higher load condition.

### ***Response to Arguments***

8. With respect to claim 38, Applicant's arguments filed April 3, 2002 are not persuasive. Specifically, it is understood that the gear arrangement of Visser will

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inherently having a contact area between the worm and the worm gear in a low-load condition which is smaller than the contact area at a higher load condition.

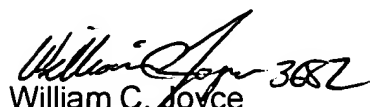
***Allowable Subject Matter***

9. Claims 1-25, 32-37, and 39-46 are allowed.
10. Claim 31 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Joyce whose telephone number is (703) 305-5114. The examiner can normally be reached on Monday - Thursday 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bucci can be reached on (703) 308-3668. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7687 for regular communications and (703) 305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

  
William C. Joyce  
June 13, 2002